



MISSION REPORT

Indo-French seminar on agricultural research

April 17-18, 2003

Roberto Bacilieri — MRI/INRA
Patrick Y. Durand — DRE/CIRAD



Photo S Kaushik

INRA — CIRAD — ICAR — Amba-France

Indo-French Seminar on Agricultural Research

April 17-18, 2003

Executive summary

A joint INRA-CIRAD delegation led by the INRA President Prof. Bertrand Hervieu carried out in April 2003 a mission in India with the objective of identifying themes and modalities of strengthening the scientific co-operation. For INRA, the delegation included the following Scientific Directions : Human nutrition and food safety, Animal and animal products, Environment and natural and cultivated ecosystems, the Mission of International Relations and several departments' representatives Environment and agronomy, Economy and rural sociology, Nutrition, food and food safety, Hydrobiology and wild fauna. Mr. Patrick Y. Durand, from the Directorate for International and European Relations, represented the CIRAD

The delegation was warmly welcomed with the presence, at the seminar, of the Indian Minister of Agriculture, who opened the working session. This seminar was seen as a clear sign of the willingness of strengthening the partnership between France (Europe) and India for agronomic research. The agronomic research *sensu lato* is indeed at the crossing point of two Indian priorities: the rural and agricultural development associated with poverty alleviation, and the high-level scientific research.

The seminar programme included four working groups with the objective of identifying and deciding research areas for joint collaboration. Four main themes of common interest were identified plant and animal genomics, environment, nutrition and food safety, economics and social sciences. Several sub-themes were also defined, as well as respective resource-persons within each Institute, for further development through follow-up talks among the scientists after this seminar.

Some funding sources were also mentioned , either for supporting common research projects (CEFIPRA-IFCPAR UE, etc.) or personnel exchange and training (Embassies ; Marie-Curie Grants ; etc.).

The seminar was concluded by the signature of a tripartite agreement of cooperation between ICAR, CIRAD and INRA

---oo00oo---

Indo-French Seminar on Agricultural Research

April 17-18, 2003

1 - Objectives

a- Pursuing the initiative taken in July and November 2002 by ICAR, CIRAD and INRA to structure and strengthen the scientific partnership among them

- Signing of a Memorandum of Agreement ICAR - INRA - CIRAD
- Definition of a "Work Plan" ICAR - INRA - CIRAD
- Negotiation for the installation of a Indo-French Bureau for Agricultural Research.

b- Aside from the seminar, this visit was also the occasion for INRA and CIRAD to follow-up other initiatives in India (April 10-16th)

- For INRA . follow-up of the joint research project on waste-water treatment at the Anna University, which includes a French Ph.D. posted in Madras .
- For GIRAD . negotiation with IARI (Indian Agricultural Research Institute) for initiating a joint project CIRAD — CASS (Centre of Agricultural Systems Simulation), as soon as the Work Plan ICAR- INRA-GIRAD is signed ;
- Meeting with the French Institute of Pondicherry and study of the respective scientific priorities for the establishment of synergies and complementarities.

2 - Salient points of the ICAR-INRA-CIRAD seminar

1. Definition of five priority research areas, which would be included in the next Work-Plan : (i) milk production, processing and transformation, (ii) water and water resources (iii) plant and animal genomics and functional genomics (iv) agricultural farm economy and organization of the agricultural industry in the world economy and (v) environment, climatic changes, natural resources.
2. Agreement for the establishment of a Indo-French Bureau for Agricultural Research, involving a French and an Indian representative
3. Signing of the tripartite agreement of co-operation between ICAR, GIRAD and INRA.

3 - Memorandum of agreement : ICAR-INRA-CIRAD

At the last ICAR GIRAD INRA meeting of November 2002, it was established that the hierarchy of agreements and contract documents in the field of agriculture was the following

Documents	Partners	Duration
MOA (Memorandum of Agreement)	Ministry of Agriculture of France and India	(¹)
MOA (Memorandum of Agreement)	ICAR + INRA + GIRAD	until any Party serves notice of termination
WP (Work Plan)	ICAR + INRA + GIRAD	Four years — renewable
"Project documents"	Institutes and University of ICAR – departements of CIRAD and/or INRA	According to the project

Agreement presently under negotiation

The memorandum of agreement between ICAR, CIRAD and INRA, after obtaining the visa from the French and Indian Authorities, was signed by the three parties on April 17th, 2003. The agreement was to be signed in three versions (hindi, english and french) ; the French version remains to be elaborated and signed by the three parties (exchange of documents by courier).

4- Indo-French Seminar on Agricultural Research

This seminar was organised under the aegis of the Ministry of Agriculture of India, the 16th and 17th of April, 2003, with two main objectives :

- (i) Presenting the activities and orientations of the scientific departments of the three Institutions
- (ii) Identifying broad common priority themes of cooperation for the three Institutions.

In this respect, four working groups were constituted

Working Group 1: Biotechnology, nutrition, post-harvesting and food safety.

Working Group 2: Environment and natural resource management

Working Group 3: Socio-economics and modelling

Working Group 4: Co-operation and research management Intellectual property rights, human resources development

Each group included representatives of the ICAR institutes and representatives of INRA and CIRAD (list below) The four working groups produced recommendations on the following collaboration themes

1. Biotechnology, nutrition post-harvest and food safety

- 1.1. Genome analysis and functional genomics . to be applied to several plants and traits to be defined in common by ICAR, INRA and CIRAD : wheat, sugarcane, cotton, citrus, and the priority traits resistance to temperature, salt and drought (wheat and citrus) ; resistance to virus (banana) , fiber quality (cotton) ; resistance to diseases (sugarcane) (contacts G Riba [INRA] — J Meunier [CIRAD] — G. Kalloo [ICAR])
- 1.2. Animal reproductive biotechnology (buffaloes, cattle, fishes) (INRA contact J.P. Renard) ; genomics (poultry, buffalo, fish) - (INRA contact C Chevalet) ; ecology of microorganisms in the rumen system ; vaccines and diagnostics by recombinant DNA parasite resistance
- 1.3. Nutrition and food safety methodology of chemical and biological safety for grain-, legume-, fruit and animal-derived products (INRA contact J.-P, Laplace, Paris)
- 1.4. Post-harvest technology ; techniques for stock conservation and lessening the stock losses in packaging, storage, transformation, secondary products, membrane technology for oil and proteins ; detoxification and applied microbiology.

2. Environment and natural resource management

- 2.1. Management of liquid and solid wastes (contact R. Moletta et S. Houot [INRA] / A.K. Biswas [IISB-Bhopal] — A.K. Shukla [PDCSRI-Modipuram])
- 2.2. Impact of climatic changes on agrarian systems (contact B. Seguin [INRA] / P.K. Agarwal [IARI-Delhi])
- 2.3. Climatic, pathology and parasite attack foresight (F. Forest [CIRAD] — L. Philippe [INRA] — Ramakrishnan [CRIDA])
- 2.4. Integrated agricultural systems for improving the livelihood of mountain and hill populations (F Forest [CIRAD] — K.S. Dadwal [CSWCR])



3. Rural sociology and economy

Theme 1 : WTO, Agriculture and sustainable development (INRA contact : S. Ramani)

- 3.1. Agriculture : the agricultural production system
- 3.2. Agro-industries : industrial transformations, marketing and market for agricultural products
- 3.3. Intellectual property rights and biotechnologies
- 3.4. Trade

Thème 2 : Kyoto, Environment and sustainable development (INRA contact : S. Ramani)

- 3.5. Natural resource economy (integrated management of water, soil and biodiversity resources ; cost-benefits analysis of the various technological options integrating the environmental component)
- 3.6. Social dimension and participatory approach in the water resources management (water, land property, biomass, biodiversity)

4. The Working group N. 4 (cooperation, IPR and human resources development) also presented several proposals:

- 4.1. the concept of an **"Indo-French Cell (or bureau) on Agricultural Research"**, with one representative jointly named by CIRAD and INRA, and a representative named by ICAR, in charge of the monitoring of the Work Plan and of helping establishing new partnerships (list readjusted every two years).
- 4.2. the organisation of an "Indo-French seminar on the property rights for genes, living materials and regional products". This concept is supported by the MoST of India, by the Embassy of France, by the Ministry of Agriculture of France and CEFIPRA-IFCPAR.
- 4.3. In the area of institutional strengthening, it is proposed to organise a return meeting in France, in 2004, in coordination with CIRAD, INRA, Agropolis, IRD and Cemagref, with the support of the Ministry of Foreign Affairs of France.
- 4.4. **Modalities** : The above priorities are to be included in the Work Plan for the next four years. The **resource-persons** indicated above **are thus invited** to exchange opinions and availability with their counterparts in order to define a consensual document for each discipline to be included in the Work Plan. These exchanges can take place in 2003 so that the Work Plan is ready for signature by late 2003 or beginning 2004. Once the Work Plan is signed, the Institutes **agrees to seek appropriate funding**, in the form of **"seed money"**, in order to initiate the collaborative activities.

The seminar and the work of the working groups allowed to identify five broad scientific themes, which were agreed upon by the President of INRA, the representative of CIRAD and the Director General of ICAR

- a. Milk sector, from production to processing, transformation and conditioning.** A multidisciplinary approach was identified for this subject, including animal genetic improvement for milk production, production systems, post-harvest processing and transformation, pathology and socio-economics analysis (INRA contact : J.L. Maubois ; CIRAD contact : B. Faye).
- b. Water and aquatic resources:** resource management, water treatment, aquaculture in brackish and fresh water, decision making tools, socio-economic aspects. This subject could make part of a joint "network research project" in the context of the project call of the Ministry of Foreign Affairs of France and Ministry of Science and Technology of India (INRA and CIRAD contact : S. Kaushik).
- c. Environment, climatic changes, natural and cultivated ecosystems and natural resources management**, including pesticide impacts on agriculture and agro-ecology in mountain zones to (INRA contact : J. Berge, ICAR contact : JS. Samra, CIRAD contact : F. Forest)

- d. Economy of family farm agriculture and organisation of agricultural industry in the world economy.** This includes aspects from modelling of agricultural production sectors such as the milk sector, and the simulation of the impact on economy of agricultural policy changes (CIRAD Amis / Ecopol projet with IARI — CASS² ; CIRAD contact : P.Y. Durand).
- e. Genome analysis and functional genomics:** to be applied to several animal and plant species, identified in common by ICAR, Cirad and INRA, such as Sugar cane, Cotton, Citrus sp. (CIRAD and INRA contact : PY Durand ; ICAR contact : JS Samra)

6- Potential funding sources

Further to the EU-India Science and Technology agreement signed on November 23, 2001, two new context were defined for the participation of Indian teams in European programmes, and reciprocally.

The first is in the context of the "Co-operation for development" programme of the EU's research Framework Programmes. In the recent years, the Community and India carried out a successful research co-operation focused on sustainable development key themes (health, agriculture, natural resources management). In the last 6 years, for instance, 42 projects, worth EUR 23 million, including EU and Indian scientists (as well as scientists from other developing countries, especially from Asia) have been supported by the Union

Since then, *"Thanks to a landmark agreement on scientific and technological co-operation adopted by the EU Council on 25th June 2002, this co-operation will be brought a step further and extended to all the fields Indian and European scientists feel they can work together. The agreement is based on the principle of mutual benefit, reciprocal opportunities for access to each other's programmes and activities relevant to the purpose of the agreement, non-discrimination, and the effective protection of intellectual property and equitable sharing of intellectual property rights. It will allow participation of Indian scientists to all the Union's research activities, and, reciprocally, will give access to European scientists in similar Indian programmes"* (citation from <http://europa.eu.int/comm/research/iscp/countries/india/in-doc1.pdf>, 13.09.2002).

With regard to the Sixth European Programme on Science and Technology, Indian organisations will also have access particular to all the 8 thematic priorities of the Programme 2002-2006 i.e.: genomics and biotechnology for health, information society technologies, nanotechnologies, intelligent materials and new production processes, aeronautics and space, food safety and health risks, sustainable development and global change, citizens and governance in the European knowledgebased society.

On a bilateral basis, CEFIPRA or IFCPAR, the Indo-French Centre for Promotion of Advanced Science, is a programme of cooperation supported by the Ministry of Science and Technology of India and the Ministry of Foreign Affairs of France. Among its objectives

Promotion of the Indo-French cooperation in science of excellence including agronomy and industrial science ;

Assistance to the joint projects with financial and intellectual support.

Organisation of scientific events such as conferences or seminar.

Its annual budget is 2,57 M€. Several projects from INRA and CIRAD have been or are being supported, with an average contribution between 30 and 45 K€.

The CEFIPRA director met with the French delegation for a reciprocal introduction and an exchange about programmes and priorities.

² **IARI - CASS : Indian Agricultural Research Institute / Centre of Agricultural System Simulation - New Delhi**

CEFIPRA is guided in its scientific priorities by the Indo-French Commission for Science and Technology. This latter is coordinated by the Ministry of Science and Technology of India and the Ministry of Foreign Affairs of France.

The recent official agreement between ICAR, INRA and CIRAD should put the agricultural sciences in good position within this programme.

7- Follow-up action

Actions	In charge	Calendar
To prepare the French version of the memorandum of agreement	CIRAD DREI + INRA DRI	Oct. 2003
To prepare the Work Plan, including the list of areas of collaboration and intellectual and germplasm exchange conditions	CIRAD DREI + INRA DRI + ICAR	Oct.-Nov. 2003
Preparation of a Indo-French seminar on Intellectual property rights and protection of genetics obtentions and living materials, in coordination with the Embassies of India and France.	Services of CIRAD + INRA + ICAR	Dates to be agreed
In coordination with Agropolis, preparation of a return meeting in France on agricultural research	Services CIRAD + INRA + Agropolis et ICAR	2004

---00000000--__



Appendix 1 : List of the persons met during the visit

Names	Position
ICAR (Indian Council of Agricultural Research) – New Delhi	
Dr Mangala Rai	Directeur Général
Dr Kiran Singh	Deputy Director General Animal Science
Dr G. Kalloo	Dep. DG Crop Science and Plant Genetic Resources
Dr N.S.L. Srivastava	Assistant. DG Engineering
Dr P. Das	Dep. DG Extension
Dr S. Ayyappan	Dep. DG Fisheries
Dr G. Kalloo	Dep. DG Horticulture / Crop Sciences
Dr J.S. Samra	Dep. DG Natural Resources Management
Vandana Sharma	Under Secretary, DARE (Department of Agricultural Research & Education)
Dr M. M. Mustaffa	Princ. Scientist, National Res. Centre for Banana, Tiruchirapalli, Tamil Nadu.
Dr V.J. Shivankar	Princ. Scientists National Res. Centre for Citrus, Nagpur.
Dr R. P. Singh	Head Div. Agricultural Economics, IARI
Dr. Bangali Baboo	Head, Agri. Structures & Environ'tal Control, Central Instit. of PostHarvest Engineering & Technology, Pau, Ludhiana
Dr V.N, Sharda	Director, Central Soil & Water Conservation Research & Training Institute. Dehra Dun
Dr C. L. Acharya	Indian Institute of Soil Science, Bhopal.
Ministry of Environment & Forests	
Dr R.K. Suri	Director
Ministry of Science & Technology (MOST)	
Dr Usha Sharma	Adviser, International Division, DST
ICFRE (Indian Council of Forestry Research & Education) Dehra Dun	
S. SINGSIT	Deputy Director General
CEFIPRA IFCPAR (Indo-French Centre for the Promotion of Advanced Research)	
P.G.S. Mony	Director General
V.V. Rao	Scientist
Ambassade de France en Inde New Delhi	
Pascal Chossat	Attaché scientifique
Olivier Crassard	Attaché commercial adjoint
Benjamin Demière	Chargé de mission

Appendix 2 : Composition of the French Delegation

Bertrand Hervieu - President of INRA

Philippe Ferlin - Director of International Relations, INRA

Patrick Durand - European & International Relations, CIRAD

Bernard Cristofini - Delegate for Prospective and Development, INRA

S. Kaushik - Director of the Hydrobiology Centre, INRA

Roberto Bacilieri - International Relations, INRA

J.-B. Berge - Deputy Scientific Director for Environment, Agriculture and Forests, INRA

J.-P. Laplace - Deputy Scientific Director for Human Nutrition and Food Safety, INRA

Bernard Itier — Environment and Agronomy Department, INRA

Christian Valin — Deputy Scientific Director for Animal and Animal Products, INRA

Shyama Ramani - Rural economy and sociology, INRA

Edmond Rock - Metabolic diseases and micro nutriments, INRA

and

Pascal Chossat -- Cultural Counsellor, Service of Scientific and Cultural Cooperation, Embassy of France in New Delhi

**Appendix 3 - Programme of the Indo-French Seminar of Agricultural Research—
April 16-17th**

Date	Heure		
16 Avril 03	10 - 11:30	Ouverture inaugurale par le Président (DG) de l'ICAR et le Président de l'INRA <ul style="list-style-type: none">• La recherché agronomique en Inde - DG ICAR• La recherché agronomique en France et en Europe - Président INRA.	
	11:30 – 12: 00	Pause Thé	
	12:00 - 13:00	Thèmes et organisation du séminaire Rappel de l'histoire de la coopération et dispositifs existants (CEFIPRA, IFP, CSH, Laboratoires associés, etc.)	
	13:00 – 14:00	Répas	
	14:00 - 18:00	Présentation des activités de recherche des Institutions Françaises et Indiennes	
		ICAR <ul style="list-style-type: none">✓ Crops✓ Horticulture✓ Animal I fisheries✓ Natural Resources✓ Engineering + Post harvest✓ Education	INRA c& CIRAD <ul style="list-style-type: none">✓ Food safety and human nutrition (J-P Laplace)✓ Environment (J-B Bergé)✓ Biotechnology & Animal Science (S. Kaushik and C. Valin)✓ Policy and decision tools (S. Ramani)
17 avril 03	09:00 - 12:00	Working groups (focused on genertic themes) : (Objectives: To formulate programmes, areas, training) <ul style="list-style-type: none">° Biotechnology, nutrition, food safety, post harvesting (JP Laplace, C. Valin, S Kaushik)° Environment and Natural Resource management (JB Bergé, B (tier, P Grard)° Socio-economics and modelling (S Ramani, B Cristofini, CSH)° Cooperation and research management, IPR Issues, Human resources development (PY Durand, P Ferlin, R Bacilieri)	
	12:00 – 13:00	Lunch break	
	13:00 - 15:00	Preparation	
	15:00 - 18:00	Plenary session	